

05/01/14    Agenda:

- Review Homework
  - Worksheet 5 - Surface Area of Pyramids
- Formula Sheet
- Section 12.3 - Surface Area of Cones
- Homework
  - Worksheet 6 - Surface Area of Cones

# SURFACE AREA AND VOLUME FORMULAS

Name: \_\_\_\_\_

## KEY:

L.A. = Lateral Area

S.A. = Surface Area

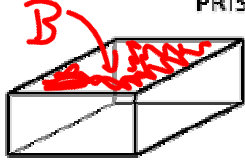
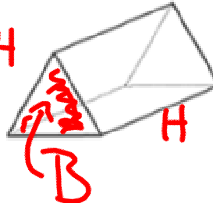
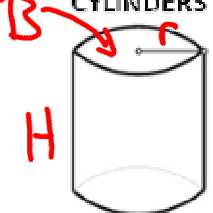
V = Volume

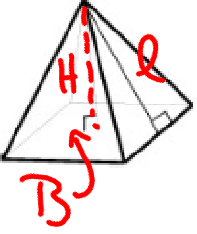
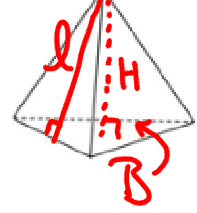

P = perimeter of base

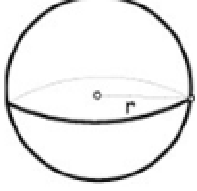
B = area of base

H = height of figure

ℓ = slant height of figure

Straight-Sided Figures (Repeating Base) 2 Bases	PRISMS  	CYLINDERS  <p> <math>P = C = 2\pi r</math>  <math>B = \pi r^2</math> </p>
<p>L.A. = <math>P \cdot H</math></p> <p>S.A. = <math>LA + 2B</math></p> <p>V = <math>B \cdot H</math></p>		

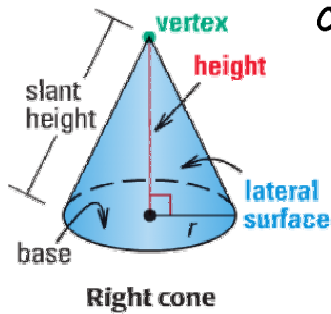
Pointed Figures (Shrinking Base) 1 Base	PYRAMIDS  	CONES  <p> <math>P = C = 2\pi r</math>  <math>B = \pi r^2</math> </p>
<p>L.A. = <math>\frac{P \cdot \ell}{2}</math></p> <p>S.A. = <math>LA + B</math></p> <p>V = _____</p>		

Spheres No Bases	SPHERES 
<p>S.A. = _____</p> <p>V = _____</p>	

## Unit 11 Day 6 - Surface Area of Cones

### Target 11D

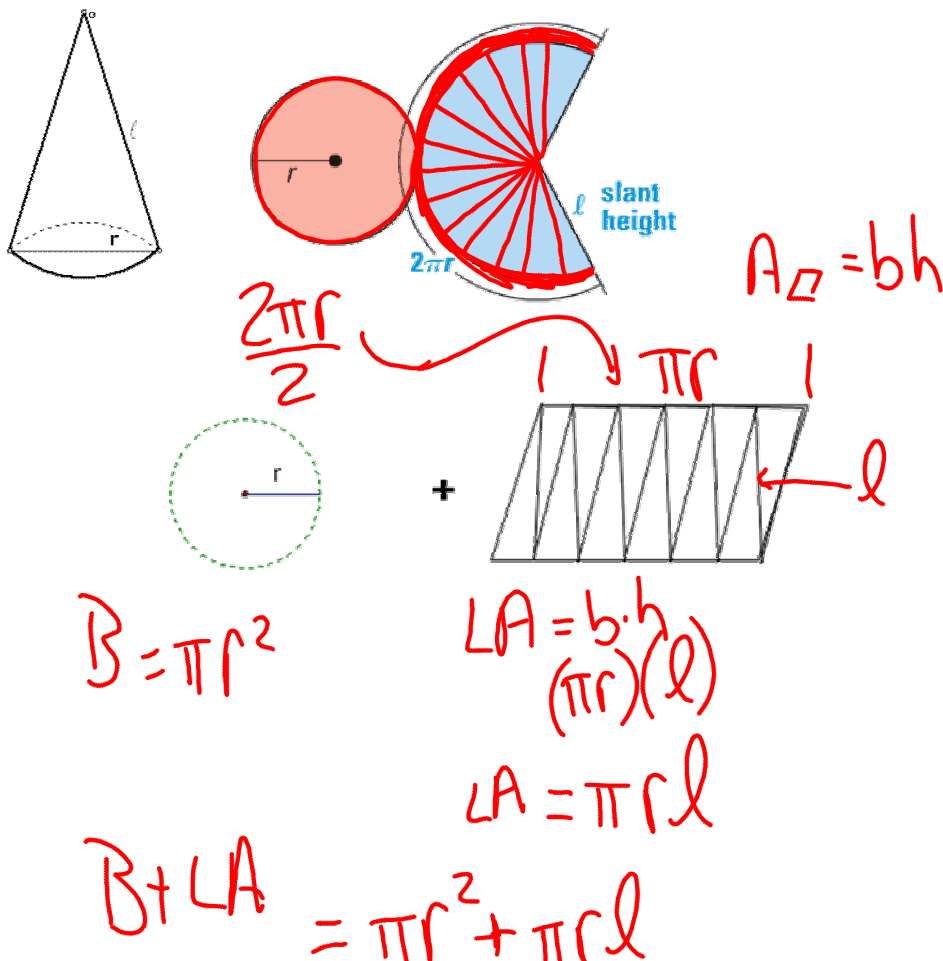
May 1, 2014



#### Cone:

- A 3-D shape with 1 circular base and a vertex not co-planar to the base
- The radius of the base is the radius of the cone.
- The height is the perpendicular distance between the base and the vertex.
- The slant height is the distance between the vertex and a point on the base edge.

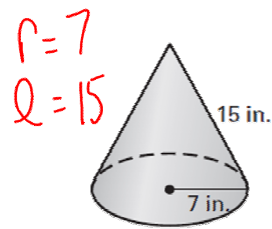
- What does the net of a cone look like? If you cut a cone along the slant height and flatten it out, you have a net that looks like:



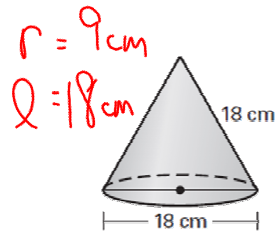
Unit 11 Day 6 - Surface Area of Cones  
Target 11D

May 1, 2014

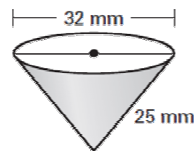
Find the surface area of the following cones:  
(leave the answers in terms of  $\pi$ )



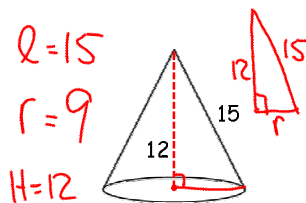
Base:  $\pi r^2 = \pi 7^2 = 49\pi \text{ in}^2$   
 LA:  $\pi r l = \pi \cdot 7 \cdot 15 = 105\pi \text{ in}^2$   
 SA:  $B + LA = 49\pi + 105\pi = 154\pi \text{ in}^2$



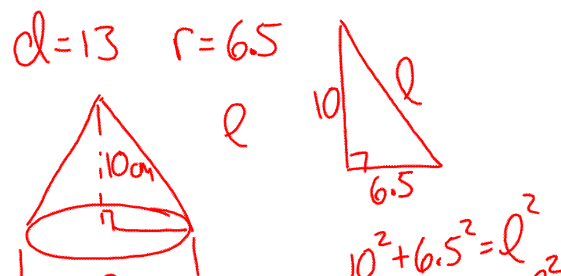
Base:  $\pi r^2 = \pi 9^2 = 81\pi \text{ cm}^2$   
 LA:  $\pi r l = \pi \cdot 9 \cdot 18 = 162\pi \text{ cm}^2$   
 SA:  $B + LA = 81\pi + 162\pi = 243\pi \text{ cm}^2$



Base:  $\pi r^2 = \pi 16^2 = 256\pi \text{ mm}^2$   
 LA:  $\pi r l = \pi \cdot 16 \cdot 25 = 400\pi \text{ mm}^2$   
 SA:  $B + LA = 256\pi + 400\pi = 656\pi \text{ mm}^2$



Base:  $15^2 = 12^2 + r^2$   
 $225 = 144 + r^2$   
 $81 = r^2$   
 $r = 9$   
 LA:  $\pi r l = \pi \cdot 9 \cdot 15 = 135\pi$   
 SA:  $B + LA = 81\pi + 135\pi = 216\pi$



Base:  $10^2 = 6.5^2 + r^2$   
 $100 = 42.25 + r^2$   
 $57.75 = r^2$   
 $r = 7.6$   
 LA:  $\pi r l = \pi \cdot 7.6 \cdot 13 = 98.8\pi$   
 SA:  $B + LA = 45.16\pi + 98.8\pi = 143.96\pi$